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| 09/664,130      | 09/18/2000  | Graylon K. Williams  | GIO-004-US          | 3988             |

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| EXAMINER |
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MITCHELL, KATHERINE W

| ART UNIT | PAPER NUMBER |
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3677

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/664,130

Applicant(s)

WILLIAMS ET AL.

Examiner

Katherine W. Mitchell

Art Unit

3677

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 February 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 16-18 is/are pending in the application.  
4a) Of the above claim(s) 14 and 15 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☐ Claim(s) 1-13 and 16-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Note that the examiner of the case has changed.

#### ***Claim Objections***

1. Claims 4-10 and 17-18 are objected to because of the following informalities:

Claims 4-10 and 17-18 list specific components of the composition. However, 4-10 depend on claim 1 and 17-18 ultimately depend on claim 16, and the independent claims allow a wide range of components. It is unclear if the specified components of claims 4-10 and 17-18 are selected from the Markush groups of the respective independent claims, or if they are in addition to the choices. Are there 3 components positively recited, or 6 components positively recited? For example, in claim 4, "potassium perchlorate" - is it the oxidizer, or can the oxidizer still be "selected from the group consisting of metal and nonmetal perchlorates" and the potassium perchlorate is in addition to the oxidizer selected from the group consisting of metal and nonmetal perchlorates?

Claim 10 was typed so it runs off the page and cannot be read and thus by definition is unclear because it is incomplete. Examiner will consider claim 10 as originally filed as a courtesy, but applicant is reminded that the claim listing must contain every claim and cannot rely on previously presented claim text.

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

Art Unit: 3677

art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-13 and 16-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the particular gas generating composition on page 1 lines 27-30, page 6 lines 8-12, and Table 1, does not reasonably provide enablement for any gas generant composition of silicone, oxidizer, and coolant that comprises a burn rate of .04 inches per second at ambient pressure.. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The specification is enabled only for the specific compositions that comprise silicone, an oxidizer, and a coolant in specified proportions or under specific conditions. Applicant's claims however require only three ingredients (i.e. silicone, an oxidizer, and a coolant) and read on any gas generating composition that merely has those ingredients. Is it the case that any gas generating composition with silicone, an oxidizer, and a coolant as claimed would achieve the claimed .40 ips at ambient pressure burn rate. One of ordinary skill in the art would not be able to determine what compositions would meet this limitation without undue experimentation.

5. Claims 1-13 and 16-18 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The silicone, an oxidizer, and a coolant are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA

Art Unit: 3677

1976). Applicant's claims require that a specific burn rate is achieved but only requires three broad ingredients of unspecified proportions. One of ordinary skill in the art would not be able to determine what compositions would meet this limitation without undue experimentation.

6. Claims 1-13 and 16-18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the specific proportions, weights, or conditions. Since these ingredients are essential to achieving the claimed burn rate they must be included in the claims. One of ordinary skill in the art would not be able to determine what compositions would meet this limitation without undue experimentation.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-13 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lundstrom (5,962,808) in view of Taylor et al (5,538,568) and Austruy et al (5,610,444).

Lundstrom discloses a gas generating composition that comprises an oxidizer such as perchlorates, including AP from 0-50 % and metal and nonmetal nitrates (col. 4, lines 35-50), a coolant (col. 4, line 53), and silicone from 0-15 % (col. 5, lines 40-45).

The particular coolant is not disclosed.

Taylor et al teaches a gas generating composition with coolants such as oxalates, carbonates, and hydroxides of alkali and alkaline earth metal up to 30 % (col. 5, lines 62-67 and col. 6, lines. 1-5). Taylor also teaches perchlorate oxidizers in amounts from 70-90 %.

Austruy et al teaches a gas generating composition that comprises large amounts of a silicone binder with AP and sodium nitrate (see examples).

Further, since no additional components or limitations are disclosed, the listed components must meet the burn rate limitations, since in an apparatus claim, the composition and structure, not properties, are what determine the metes and bounds of the claim. Since all the structural limitations are met, then the burn rate must inevitably be taught as well. Any other assumption would result in the claims lacking enablement.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coolants as taught by Taylor since Lundstrom discloses that coolants may be used and also to vary the amounts of the coolant and oxidizer of the gas generating composition to achieve a desired result. It is also obvious to use a secondary oxidizer since Austruy teaches that it is known to use one with perchlorate oxidizers and also since Lundstrom discloses many different oxidizers that can be used. It is well-settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

***Response to Arguments***

Art Unit: 3677

9. Applicant's arguments filed 2/14/2005 have been fully considered but they are not persuasive. Applicant argues that a burn rate of 0.4 ips at ambient pressure patentably distinguishes the claims from the prior art. However, applicant has provided no claim structure which enables one of ordinary skill to ensure that this burn rate condition is met; therefore, the composition as stated must either inherently meet the burn rate limitation to be enabled, or else the claim is not enabled.

In response to applicant's argument that Lundstrom and Taylor are concerned with a different problem, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Further, regarding the argument that Austray et al uses silicone as a binder, not as a fuel, in an apparatus claim, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Silicone can be used as a fuel.

Finally, it appears applicant is arguing that the composition actually burns at a burn rate of 0.4 ips at ambient pressure. Again, that is intended use. Any given burn rate fluctuates with pressure, and even if the composition has a burn rate of 0.4 ips at ambient pressure, it does not necessarily follow that it is or must be used at that condition - it may be employed in higher pressures and burn faster. Conversely, a

Art Unit: 3677

faster burn rate at 1000 psi may actually also have a burn rate of 0.4 ips at ambient pressure and not be used at ambient pressure. Nothing requires the composition to be used at ambient pressures -- it is an apparatus claim. As noted above, either the broad composition claimed inherently has the claimed burn rate, or applicant has not defined the structure/composition, by amounts, percentages, or other parameters, to enable one of ordinary skill in the art to ensure such a burn rate.

For reasons unclear to examiner, applicant notes that silicon is distinguishable from silicone. Examiner cited the col and lines teaching "silicone" but regrettably made a typing error omitting the final "e" when referring to the compound, and spellcheck accepted the misspelling since it was a valid word. Examiner agrees that silicon is distinguishable from silicone, and apologizes for any apparent confusion due to an obvious spelling error.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not



Art Unit: 3677

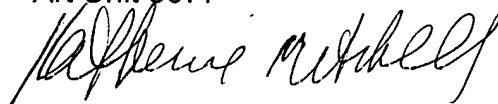
mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W. Mitchell whose telephone number is 571-272-7069. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Katherine W Mitchell  
Examiner  
Art Unit 3677



Kwm  
9/1/2005